

Application No. 09/381,828  
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Reply to Office Action of June 18, 2003

**REMARKS**

Claims 1-10 are pending in the present application. Claim 2 has been amended to correct a typographical error. This is a clarifying and not a narrowing amendment. No new matter has been added.

Based upon the above considerations, entry of the present amendment is respectfully requested.

Claims 3 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if properly rewritten into independent form. However, Applicant respectfully traverses the rejections of the other pending claims. Thus, in view of the following remarks, Applicant respectfully requests that the Examiner withdraw all rejections and allow the currently pending claims.

**Issues Under 35 U.S.C. § 103(a)**

Claims 1-2, 4-8 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Franchini in view of Baxter and Cunha or Renoe and Bader, Laughlin (newly cited and applied), Li, Rodriguez or Saxberg. Applicant respectfully traverses.

The Present Invention Is Patentably Distinct

A *prima facie* case of obviousness has not been formed.

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The present invention has achieved an automated method for the collection of data in electronic form for a three-dimensional diagram containing a dependent physical and/or chemical property of a liquid as a function of temperature and a component concentration as independent variables.

Laughlin is newly cited and applied (as shown at page 5 of the Office Action). The features of Laughlin are discussed in the Office Action, but not the inconsistencies or deficiencies thereof. Applicant respectfully submits that, in contrast to the present invention, the cited Laughlin reference describes a completely **manual** method to determine the solubility of a surfactant. Thus, this reference does not account for the deficiencies of the primary reference of Franchini or the other secondary references.

According to the secondary Laughlin reference, a sample is placed in a tube equipped with a thermometer, and the sample is rapidly heated or cooled and continuously stirred to ascertain whether a phase transition exists. If a phase transition is found, the sample is heated or cooled past the transition using baths which are not more than 20-30°C above or below the transition. Then the temperature is allowed to drift back toward room temperature, the sample is **visually** observed, and the temperature is noted where the separating phase first appears or last disappears. This process is

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repeated until a reproducible value is obtained. An aliquot of water is then added to the sample in the tube, and the procedure indicated above is repeated. At a concentration of about 15%, then an aliquot of 1.5-2g of the composition is transferred to a new tube, and the dilution is continued to cover the lower concentration. From the data, the phase transitions are connected to smooth curves to show the boundaries in a **two-dimensional** diagram (see Figure 2 in the article). Laughlin does not provide a numeric value for the cloudiness as a function of temperature and concentration.

Thus, neither Franchini or Laughlin account for the deficiencies of each other or the other cited references. Not all features as instantly claimed are disclosed by the cited combination(s) of references. For instance, none of the cited references disclose step 2) of instantly pending claim 1.

Further distinctions of the present invention over the cited combinations of references exist. In Laughlin, the manual method of finding a phase transition and to measure the temperature, at which the phase transmission occurs, is tedious and quite time-consuming. Each reading takes about 15 minutes, and the determination of the solubility boundaries takes 1 day. No numeric readings of the dependent property are made. Thus, there is not only an essential difference in the method of producing the data, but also between the

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value of the information given in the two-dimension diagram by Laughlin and a three-dimensional diagram of the present invention. Thus, one of ordinary skill in the art would not combine the Laughlin reference with Franchini, or any of the other cited references, when Laughlin or Franchini do not disclose automated methods as instantly claimed. There is no "clear and particular" guidance in the cited references for one of ordinary skill in the art to achieve the present invention, especially considering the disclosed manual, time-consuming methods of the references. While a cited reference need not expressly teach that the disclosure contained therein should be combined with another, see *Motorola, Inc. v. Interdigital Tech. Corp.*, 43 USPQ2d 1481, 1489 (Fed. Cir. 1997), the showing of combining references "must be clear and particular". See *In re Dembiczak*, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). As mentioned, there is no guidance here in any of the cited references to achieve the methods as presently claimed.

Also, Applicant respectfully refers the Examiner to Figure 2 of the present specification, which shows the three dimensional diagram of a "landscape" of the dependent property. The access to this type of information is very valuable, and it is evident that Laughlin did not know how to obtain all these data in a simple and rapid manner. One of ordinary skill in this art would readily understand that the

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present invention is patentable distinguishable over the cited combination of references, especially in view of the descriptions of two-dimensional diagrams and manual, time-consuming methods of the Laughlin reference.

Further, it would not have been obvious to one of ordinary skill in the art to combine the primary Franchini reference with a reference such as Laughlin. This is because the tedious method of Laughlin does not even provide any numeric values of the dependent parameter and has a rather poor accuracy in the temperature readings. In fact, any savings of time is, during these circumstances, of no interest (see the Office Action at page 7, lines 1-5 for the asserted motivation for combining these references). In addition, Franchini appears to have no real advantage of using the dilution process of Laughlin since the dilution does not affect the time for the sample **to reach the equilibrium**, which seems to be the main cause for the slow process in the Franchini reference. This is another reason as to why one of ordinary skill in the art would refer to the Laughlin reference upon a reading of Franchini. Thus, Applicant respectfully submits that at least two requirements for a *prima facie* case of obviousness have not been satisfied (i.e., motivation; reasonable expectation of success).

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Applicant respectfully submits that the present invention, including both pending claims 1 and 7, have patentable distinctions over the cited combinations of references (i.e., Franchini and Laughlin, etc.). The Franchini reference does not even disclose any of the process steps 2) to 6) in claim 1, and the cited Laughlin reference does not disclose any one of the process steps in claim 1. Further, neither of these references discloses an automated method for the characterization of physical and/or chemical properties as function of temperature and a component concentration as independent variables.

On page 6, last paragraph of the Office Action, the Examiner asserts that it would have been obvious at the time the invention was made to replace the successive dilution of Franchini with the successive addition of an analyte containing a solution of known concentration according to the teaching of Bader, Li, Rodriguez or Saxberg, because of the reductions of interference due to the matrix effects and the greater accuracy through use of a standard method as taught by Bader, Li, Rodriguez and Saxberg. Applicant respectfully traverses this reasoning and conclusions. Such reasoning and conclusions are deficient and inappropriate since Franchini makes successive dilutions of a solution containing a **known** amount of a **known** compound and performs conductance readings at known

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concentrations and at known temperatures. A standard addition method (SAM) is a well-known quantitative method of analysis. In such an method, successive additions of an analyte with a known concentration are added to a sample containing an **unknown** concentration of the analyte. An analytical response is measured before and after each addition. By guidance of the responses, it is possible to calculate the **unknown** concentration. Even if, *aruguendo*, SAM can give a good accuracy in the termination of the unknown concentration, this would an improper motivation in combining Franchini with the SAM references, since Franchini (as well as in the present invention) **does not perform** analyses of compounds or their contents. In other words, the problem solved with SAM is not a problem when creating 3-dimensional diagrams showing a physical and chemical properties as a function of concentration and temperature. Thus, the cited references have been improperly combined.

The cited Baxter reference describes a simplified generalized standard addition method, wherein it is possible to create a surface in a three-dimensional space from the variables obtained by varying the solid sample mass and the amount of an analyte and the observed responses. However, Baxter is completely deficient in describing the invention as instantly claimed (*i.e.*, see the features of claim 1 or claim 7). It appears that the Office Action is deficient in

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explaining how this reference anticipates the features of the presently pending claims.

In fact, Applicant submits that the Franchini reference (and any other asserted combination of references) fails to disclose many features of the present invention, such as an automated control of dilutions or automated control of dilutions in a single container. If the USPTO maintains its position, Applicant respectfully requests clarification as to how the references (or combinations thereof), such as the primary reference of Franchini, Laughlin, and/or Baxter, disclose each and every feature of the instantly pending claims. In contrast, Applicant maintains the position that one of ordinary skill in the art simply would not combine these references, and that the requisite motivation, reasonable expectation of success, and disclosure of all claimed features are lacking.

Regarding the cited Renoe reference, this reference relates to a solution handling system, wherein Figure 1 on page 662 discloses a system that produces a large number of individual samples that have to be handled later. The cited Cunha reference is directed to gravimetric burettes and their supplies with suitable solutions for titration. One of ordinary skill in the art would not be motivated or reasonably expect to be successful in combining these references with any of the other cited references since only one sample exists



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in the Renoe method, and Cunha fails to disclose many features of the present invention (such as steps 2), 3),, 4), and 5) of claim 1). These references do not even account for the deficiencies of the other references, including the primary reference of Franchini.

With regard to the assertion that Applicant has not properly understood the teaching of case 5 for the combination of Franchini with Bader (see the sentence bridging page 7 and 8 of the Office Action), Applicant respectfully submits that the disclosure of Bader has been taken out of context.

First, both Franchini and Bader relate to manual methods, and not the automated method of the present invention. This is one distinction.

Second, Bader is concerned with the analysis of an unknown amount of a known component with SAM methods.

Third, Bader is completely silent with regard to creating three-dimensional diagrams showing a dependent physical or chemical property as a function of the independent variables concentration and temperature. Thus, this reference does not account for the deficiencies of the other references, including Franchini.

Fourth, the method disclosed in Case 5 incorrectly presupposes that the analysis response is proportional to concentration.

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Fifth, the responses is plotted in a diagram, from which the unknown concentration is determined. In case 5 of Bader, the method can be performed either on the same solution or on a series of solutions. The method is said to have

"particular elegance when applied to polarography. Additions can be made to the same sample without disturbing the geometry thus keeping the IR drop relatively constant, not to mention the savings in time by avoiding changing samples. This method has shown considerable promise in the determination of Vitamin C by anodic polarography (7)".

The savings in time is related to the comparison with the SAM method, where the measurements were performed on the series of solutions. In both cases only one value is achieved, which shows that SAM methods as such are rather time consuming, for example, in comparison with an analysis method where the response of the solution with the unknown content is compared with previous prepared response curves. In the latter case all additions of solution with the solution with known concentration can be avoided and only one measurement is needed.

Thus, Applicant respectfully submits that a person skilled in the art, taking in account the whole disclosure of Bader, would not know how to proceed in constructing an automated method for the creation of the three dimensional diagram of the present invention. Franchini does not account for the deficiencies of this reference either, and vice versa. Furthermore, Franchini and Bader have

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different objectives, which is an additional reason as to why the requisite motivation and reasonable expectation of success are lacking. Even a hypothetical combination of Franchini and Bader cannot even theoretically result in an automatic method since both references relate to manual methods, which is in contrast to the present invention. Thus, the cited secondary reference of Bader fails to disclose all features as instantly claimed, and does not account for the deficiencies of Franchini or other cited references.

In fact, any combination of the cited references fails to disclose all features and steps of claim 1 or claim 7. Thus, Applicant respectfully submits that a *prima facie* case of obviousness has not been formed because not even the first requirement of disclosure of all claimed features has been satisfied. Further, Applicant submits that the cited secondary references, such as Bader, have been improperly combined to account for the deficiencies of Franchini, and that the other requirements for a *prima facie* case of obviousness have not been satisfied for the reasons stated above.

For instance, one of ordinary skill in the art would not combine Franchini with Bader when the SAM method in Bader is much more time consuming than other conventional methods when measuring a response of the unknown concentration and comparing this response with standards or calibration curves. In other words, the analyses

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disclosed in the Bader reference involve a large amount of time and labor, and this is in direct contrast to the present invention.

There is also no disclosure of the unexpected advantages of the present invention, such as the minimum expenditure of time and labor involved in obtaining data in a form that allows an overview of the dependent variables over a wide range of temperature and concentration values. The instant invention is well suited for the production of three-dimensional diagrams by the application of computer technology, and these references do not account for such an unexpected advantage.

From the above, it is evident, that the present invention is patentable distinguishable from the cited combinations of references. Applicant respectfully submits that the USPTO has not provided the requisite motivation, reasonable expectation of success, and disclosure of all claimed features as required for forming a *prima facie* case of obviousness. Applicant respectfully requests, if the USPTO maintain this position, clarification as to how and why a person skilled in this art would have combine the cited references in order to achieve the features of all presently pending claims.

Further, it should be observed that the USPTO has even failed to find a reference that relates to the objective of the present invention, namely to develop an automated method to produce a

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three-dimensional diagram. Even the cited primary reference of Franchini discloses that the large amount of data involved led them to make an empirical approach to the problem. This indicates that it was not obvious to Franchini et al. how the problem with large amounts of data could be handled. Nor would the disclosure in any one of the other cited secondary references properly motivate one of ordinary skill in the art into a means of solving the objectives of the present invention. Considering the state of the art (i.e., most of the references have been published in the seventies or eighties) and the disclosure thereof, Applicant respectfully submits that the present invention is patentably distinguishable from any combination of the cited references. Thus, reconsideration and withdrawal of these rejections is respectfully requested.

#### Impermissible Hindsight

Applicant also respectfully maintains the position that hindsight reconstruction has been improperly applied (see "Reply Under 37 C.F.R. § 1.111," filed April 7, 2003). Applicant understands that holding of *In re McLaughlin* (as cited at page 9 of the Office Action). However, the hindsight reconstruction here is substantial, and involves knowledge outside the level of ordinary skill in this art at the time the present invention was made.

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even apply because there are so many inconsistencies between the cited references, wherein such inconsistencies demonstrate that substantial hindsight reconstruction has been applied to the instant situation. The CCPA in *McLaughlin* found the references properly combined since "the secondary references show that it is well known to use side filler panels and bulkheads to confined palletized loads to prevent lateral and longitudinal shifting". *McLaughlin*, 170 USSPQ 209, 212 (CCPA 1971). Here, it is not well known to replace successive dilutions of the Franchini reference with stepwise dilutions based on the disclosure of the Laughlin reference (see page 7 of the Office Action). The cited references are also inconsistent with each other and with the present invention (see previous remarks above) since the references disclose, i.e., two dimensional diagrams and manual methods. Thus, Applicant respectfully submits that the present rejections are improper and request withdrawal of them.

### **Conclusion**

A full and complete response has been made to all issues as cited in the Office Action. Applicant has taken substantial steps in efforts to advance prosecution of the present application. Thus, Applicant respectfully requests that a timely Notice of Allowance issue for the present case.

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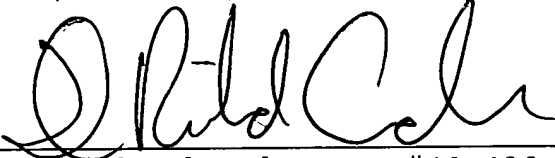
Applicant respectfully request that a timely Notice of Allowance issue for the present case.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact D. Richard Anderson (Reg. No. 40,439) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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